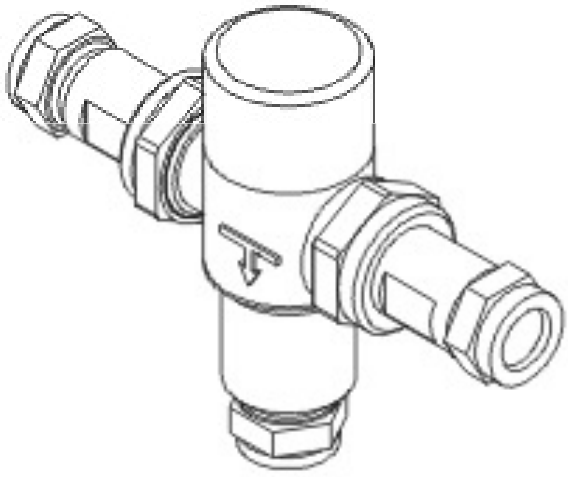
BRISTAN

Installation Instructions and User Guide

Temperature Stabilised Thermostatic Mixing Valves Complying with N.H.S Estates Model Engineering Specification D08



Models covered: MT503CP, MT503CP-22, MT503CP-ISO, MT503CP-ISOELB

Please keep this booklet for future Reference.

Installer, when you have read these instructions please ensure you leave them with the user.

Contents

Thank you for choosing Bristan, the UK's leading taps and showers expert. We have designed this product with your enjoyment in mind. To ensure that it works to its full potential, it needs to be fitted correctly. These fitting instructions have been created to give you all of the information you need and, if you need any further help, please do not hesitate to give us a call on 0844 701 6273.

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Introduction

It has been recognised that users of hot water in care establishments are at risk from scalding.

This risk has been reduced by the use of thermostatic mixing valves.

In order to assure the performance of thermostatic mixing valves N.H.S. Estates Model

Engineering Specification D08 was written. The valve listed in the following pages has been tested and approved to this standard by a third party as part of the Build Cert scheme for use within their designated applications.

This Thermostatic mixing valve has also been tested to the TMV2 scheme which works to the tests found in the BS EN 1287 (LP) and BS EN 1111 (HP)

The following abbreviated designation codes are used throughout this booklet. Detailed descriptions are given below:-

HP High pressure
LP Low pressure
S Shower
B Bidet
W Washbasin
T44 Bath with fill temperature of 44°C max
T46 Bath with fill temperature of 46°C max
BE Bidet with economy flow rate
SE Shower with economy flow rate
WE Washbasin with economy flow rate

Sirrus MT503CP APPROVED FOR USE IN THE FOLLOWING DESIGNATIONS

CODE	OPERATING PRESSURE	APPLICATION
HP-S	HIGH PRESSURE	SHOWER
HP-W	HIGH PRESSURE	WASH BASIN
LP-S	LOW PRESSURE	SHOWER
LP-W	LOW PRESSURE	WASH BASIN
HP-T44	HIGH PRESSURE	BATH FILL WITH TEMPERATURE UP TO 44°c

TMV2 Approval Certificate Number: BC283/0707
TMV3 Approval Certificate Number: BC284/0707
WRAS Approval Number: 0707013

For full installation instructions and method of temperature adjustment see General Assembly and Servicing Guide

Specifications

Minimum pressure drop through fitting for correct mixing	0.1 bar (1 Metre head)
Maximum dynamic pressure across mixer should not exceed	2.5 bar (25 Metre head)
Maximum static pressure to be applied to fitting	10.0 bar (100 Metre head)
Maximum pressure loss ratio	20:1 either supply
Temperature stability with normal variation of supply temperatures and pressures	± 2ºC from set temperature
Factory set standard blend temperature	43ºC
Maximum hot supply temperature	80ºC

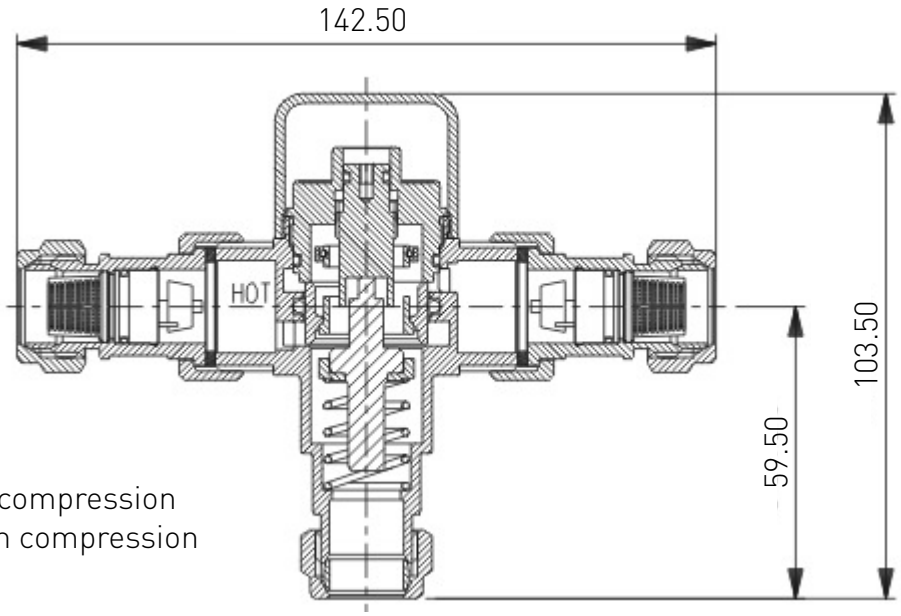
The sensitive wax capsule will shut down the operation of the valve if either the hot or cold water supply fails, provided a minimum differential of 10ºC exists between the mixed water temperature and the remaining supply.

Performance

Pressure Drop (Bar)	0.1	0.2	0.4	0.6	0.8	1	1.5	2.5	3	4	5
Flow Rate (Litres / Min)	5.9	9.8	14.7	18.2	21.3	23.8	30.5	35.0	--	--	--

Flow rates are in litres per minute at an open outlet with equal pressure drops, fitted with check valves and filters as supplied.

MT503CP



Connections
Inlet: 15mm compression
Outlet: 15mm compression

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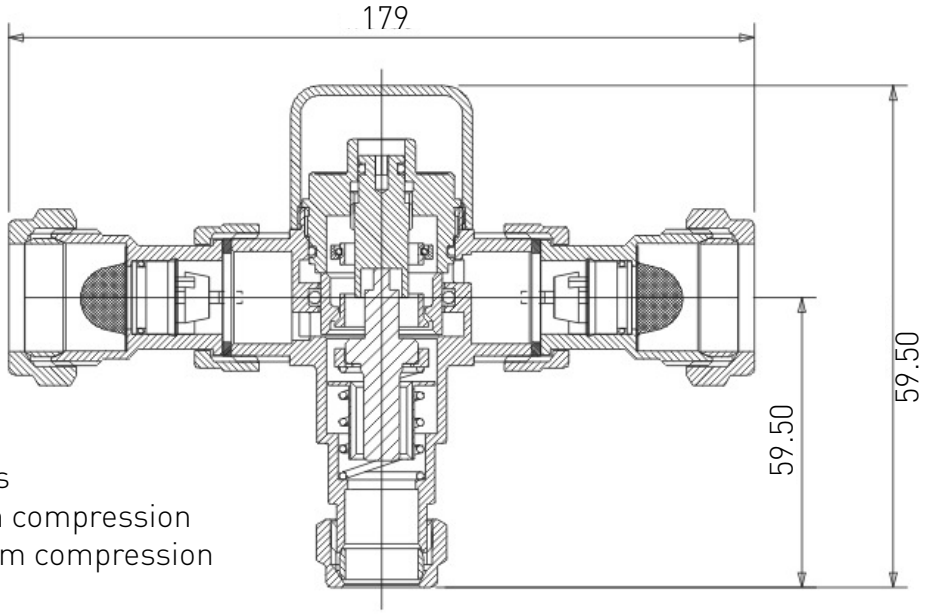
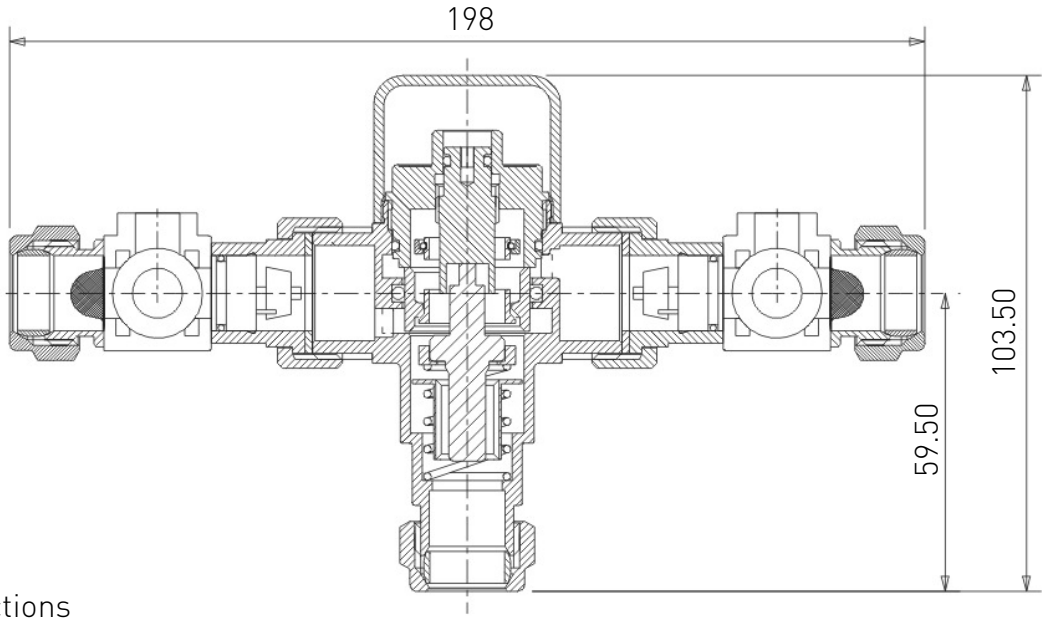
Specifications cont.

MT503CP-22



Connections
Inlet: 22mm compression
Outlet: 15mm compression

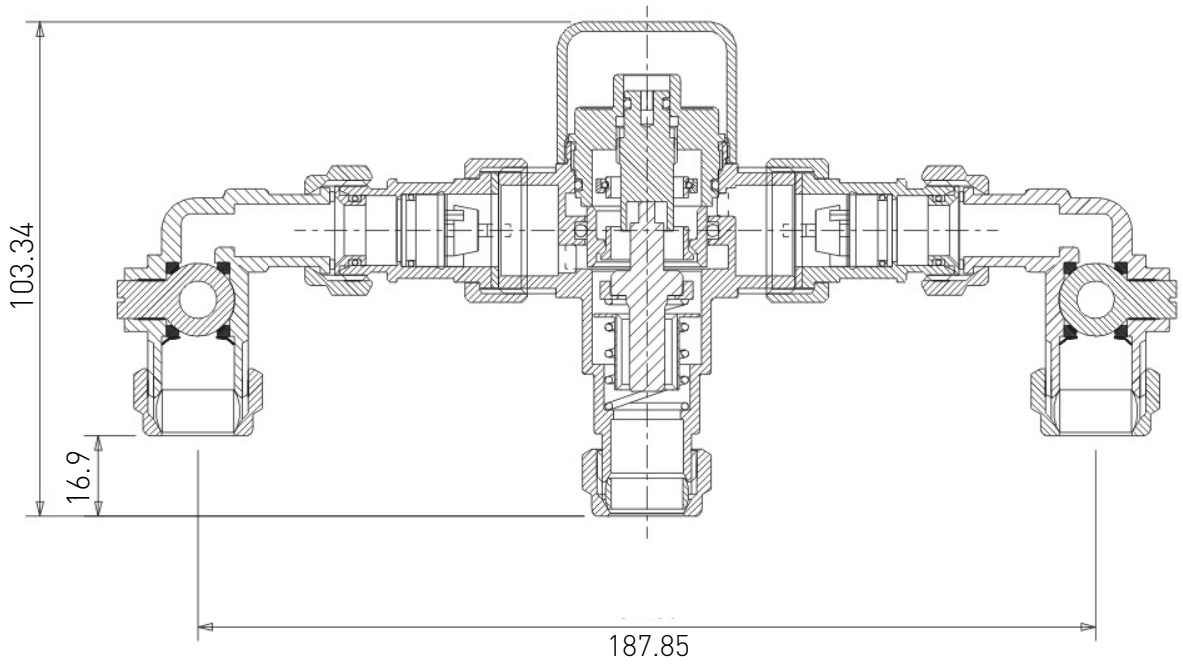
MT503CP-ISO



Connections
Inlet: 15mm compression
Outlet: 15mm compression

Specifications cont.

MT503CP-ISOELB



Connections
Inlet: 15mm compression
Outlet: 15mm compression

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Conditions for Use

The following general recommendations should be observed.

1) Always install isolating valves to facilitate servicing.
2) Always flush both supply pipes fully before connecting mixing valve to ensure no pipe debris enters the inlets. Always fit filters provided.
3) All installations must comply with current local water company regulations.

CONDITIONS FOR NORMAL USE

In order to give compliance with N.H.S. specification Do8 and TMV2 scheme. The table below lists the conditions for normal use, the valves may perform adequately outside these parameters but the TMV2 and TMV3 scheme approval does not apply. If they are required to work with other supply conditions an engineer must carry out a risk assessment and satisfy themselves that the units are still suitable for use.

Table 1: Conditions for normal use

Operating Pressure Range	Low Pressure	High Pressure
Maximum static pressure – bar	10	10
Flow pressure, hot and cold – bar	0.2 to 1	1 to 5
Hot supply temperature - °C	52-65	52-65
Cold supply temperature - °C	5-20	5-20
Minimum Temperature Differential Between Mixed Temperature & Either Supply	10°C	10°C

COMMISSIONING

Since the installed supply conditions may differ from those used in testing and setting the valves during final inspection and a valve may have several designations, it is necessary to reset the mix temperature. The following procedure should be used after ensuring:-

a) The designation of the thermostatic mixing valve matches the intended application (e.g. if a shower is to be supplied at 2 bar then the valve must have a HP-S designation).

b) The supply pressures match those for which the valve has been approved, see table1 and valve details.

Conditions for Use cont.

c) The supply temperatures are such that they are within the permitted range (see table1) and comply with guidance information on the prevention of legionnella.
Note:- If the supply conditions are not within the parameters for normal use the valve may still be suitable, but individual engineers must carry out their own risk Assessment and satisfy themselves that the units are still suitable for use.

Adjust the mixed water temperature in accordance with table 2, the method of adjustment is covered in the section temperature Setting.

Table 2: Mixed Water Temperature

Application	Abbreviated Designation	Mixed Water Temperature ºC
Bidet	-HP-B, BE, LP-B, BE	38 Max
Shower	-HP-S, SE;-LP-S, SE	41 Max
Wash basin	-HP-W, WE:-LP-W, WE	41 Max
Bath (44ºC fill)	-HP-T44; -LP-T44	44 Max
Bath (46ºC fill)	-HP-T46;-LP-T46	46 Max

Note 1: For washbasins, washing under running water is assumed.

Note 2: Bath fill temperatures of more than 44°C should only be available when the bather is always under the supervision of a competent person (e.g. nurse or care assistant)

Note 3: A thermostatic mixing valve having multiple designations (i.e. it is capable of satisfying the requirements of this specification for more than one application) should be re-set on site to suit the designation required.

The following set of tests should be carried out.

a) Record the temperature of the hot and cold water supplies.
b) Record the temperature of the mixed water at the largest draw-off flow rate.
c) Record the temperature of the mixed water at a smaller draw-off rate, which shall be measured.
d) Isolate the cold water supply of the mixing valve and monitor the mixed water temperature.
e) Record the maximum temperature achieved as a result of (d) and the final temperature.
f) Record the equipment, thermometer etc used for the measurements.

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In-Service Testing

In-Service Testing

The purpose of in-service testing is to regularly monitor the thermal performance of the thermostatic mixing valve. Deterioration in performance can indicate the need for service work to be carried out on the system.

If the authority concerned does not have a planned test and maintenance schedule then the suggestions below should form the basis of a new system.

At intervals of 6 - 8 weeks and 12 - 15 weeks after commissioning:-

1. Check supply parameters are still within the expected values if not check system for faults.
2. Carry out commissioning procedures a) to c) using the same test equipment, if the mixed water temperature has changed a significant amount (by more than 1K) check to ensure in-line filters are clean, that the check valves are working and all isolating valves are fully open. If no fault can be found check and record the mixed water temperatures and re-adjust mixed water temperature to the values in table 2. Complete the commissioning procedure a) to f) if the mixed water temperature exceeds the values of the maximum recorded temperature by more than 2K the need for service work is indicated (see relevant instruction leaflet.)

Depending on the results of these two tests the following should be adopted

a) If a small change (e.g. 1K to 2K) occurs in one of these tests or there is no significant change (e.g. 1K maximum) then the next in service test should be 24 to 28 weeks after commissioning.

b) If small changes occur in both test or a larger change occurs in one test (exceeding 2K) then the next in service test should be carried out 18 to 21 weeks after commissioning.

These results can then be used to set a service interval which tests have shown can be used with no more than a small change in mixed water temperature. This method of determining service intervals is used to take into account various in-service conditions (e.g. water condition) that the valve may experience.

Conditions of Use for Type 2 Valves

	High Pressure	Low Pressure
Maximum Static Pressure - Bar	10	10
Flow Pressure, Hot & Cold - Bar	0.5 to 5	0.1 to 1
Hot Supply Temperature - ºC	55 to 65	55 to 65
Cold Supply Temperature - ºC	Equal to or less than 25ºC	Equal to or less than 25ºC

NOTE: Valves operating outside these conditions cannot be guaranteed by the Scheme to operate as Type 2 valves.
The valves designation of use, LP if tested against BS EN 1287, HP if tested against BS EN 1111 and HP & LP if tested against both standards.

Valves approved for designation of use H.P only, must state: If a water supply is fed by gravity then the supply pressure should be verified to ensure the conditions of use are appropriate for the valve.

Valves approved for designation of use LP Tub applications that only achieve the minimum flow rate requirement at a supply pressure of 0.2 bar must indicate that the minimum supply pressure for LP Tub application is 0.2 bar.

Recommended outlet temperatures
The BuildCert TMV scheme recommends the following set maximum mixed water outlet temperatures for use in all premises:
44°C for bath fill but see notes below;
41°C for showers;
41°C for washbasins;
38°C for bidets.

The mixed water temperatures must never exceed 46°C.
The maximum mixed water temperature can be 2°C above the recommended maximum set outlet temperatures.

Note: 46°C is the maximum mixed water temperature from the bath tap. The maximum temperature takes account of the allowable temperature tolerances inherent in thermostatic mixing valve and temperature losses in metal baths. It is not a safe bathing temperature for adults or children. The British Burns Association recommends 37 to 37.5°C as a comfortable bathing temperature for children.

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Conditions of Use for Type 2 Valves

In premises covered by the Care Standards Act 2000, the maximum mixed water outlet temperature is 43°C.

The thermostatic mixing valve will be installed in such a position that maintenance of the TMV and its valves and the commissioning and testing of the TMV can be undertaken.

The fitting of isolation valves is required as close as is practicable to the water supply inlets of the thermostatic mixing valve (Model MT503CP- ISOELB is supplied with isolation valves in each elbow).

The fitting of strainers is recommended as close as is practicable to the water supply inlets of the thermostatic mixing valve.

This fitting is supplied with backflow prevention devices fitted. One 15mm spring loaded DN15 check valve is fitted in-line in each inlet of the mixer body.

Commissioning notes for Thermostatic Mixing Valves.

The first step in commissioning a thermostatic mixing valve is to check the following;

- The designation of the thermostatic mixing valve matches the application.
- The supply pressures are within the valves operating range.
- The supply temperatures are within the valves operating range.
- Isolating valves (and strainers preferred) are provided.

If all these conditions are met, proceed to set the temperature as stipulated in the manufacturer installation instructions.

Method for adjusting the mixed water temperature with a note that states:- The mixed water temperature at the terminal fitting must never exceed 46°C.

It is a requirement that all TMV2 approved valves shall be verified against the original set temperature results once a year. When commissioning/testing is due the following performance checks shall be carried out.

Measure the mixed water temperature at the outlet.
Carry out the cold water supply isolation test by isolating the cold water supply to the TMV, wait for five seconds if water is still flowing check that the temperature is below 46°C.

Conditions of Use for Type 2 Valves

If there is no significant change to the set temperature (±2ºC or less change from the original settings) and the fail-safe shut off is still functioning, then the valve is working correctly and no further service work is required.

Notes: If there is a residual flow during the commissioning or the annual verification (cold water supply test), then this is acceptable providing the temperature of the water seeping from the valve is no more than 2ºC above the designated maximum mixed water outlet temperature setting of the valve.

Temperature readings should be taken at the normal flow rate after allowing for the system to stabilise.

The sensing part of the thermometer probe must be fully submerged in the water that is to be tested.

Any TMV that has been adjusted or serviced must be re-commissioned and re-tested in accordance with the manufactures' instructions.

The installation of thermostatic mixing valves must comply with the requirements of the Water Supply (Water Fittings) Regulations 1999.

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General Assembly & Servicing Guide

1. Isolate hot and cold supplies. Remove Head Cover.
2. Unscrew Head from Body.
3. Remove Adjusting screw from Head (N.B. Note approximate position of Adjusting screw in Head before removing.
   Replacement of Adjusting screw in same position upon re-assembly ensures virtual restoration of original temperature).
4. Remove Thermostat, Piston assembly / Thermostat housing and Return spring.

TO CLEAN

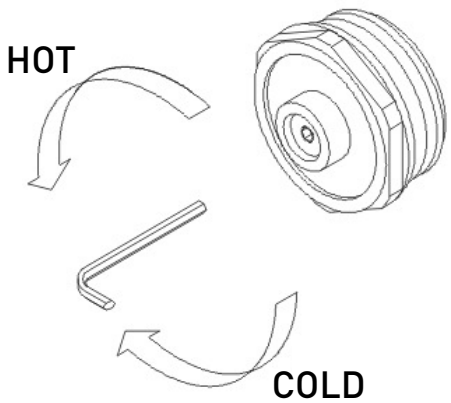
1. Soak all metal parts in de-scalent, wash off in clean water.
2. Lightly grease all metal parts with silicone grease.
3. Replace worn and damaged 'O'rings.

RE-ASSEMBLY

1. Replace Return spring and Piston assembly / Thermostat housing and Thermostat.
2. Re-assemble Adjusting screw to Head to original setting.
3. Screw Head into Body. Continue until it reaches a dead stop.
4. Slight temperature adjustment may be necessary upon re-introduction of supply.

TEMPERATURE SETTING

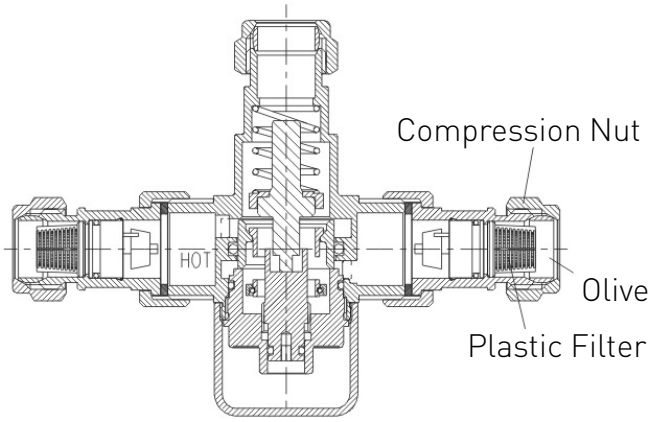
1. Turn Adjustment screw clockwise for cooler temperature, anti-clockwise for warmer temperature. Replace Head Cover.



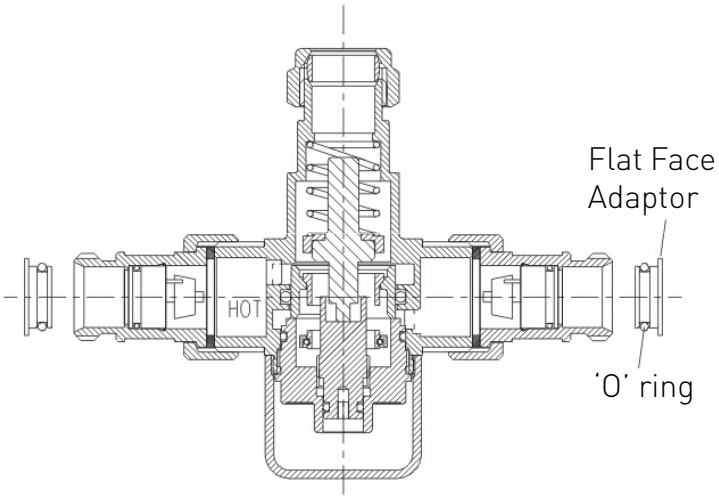
NOTE :- All installation and maintenance procedures should be carried out in accordance with these guidelines. Please read these guidelines before commencing any new installation or servicing of existing units.

MT503CP to MT503CP-ISOELB

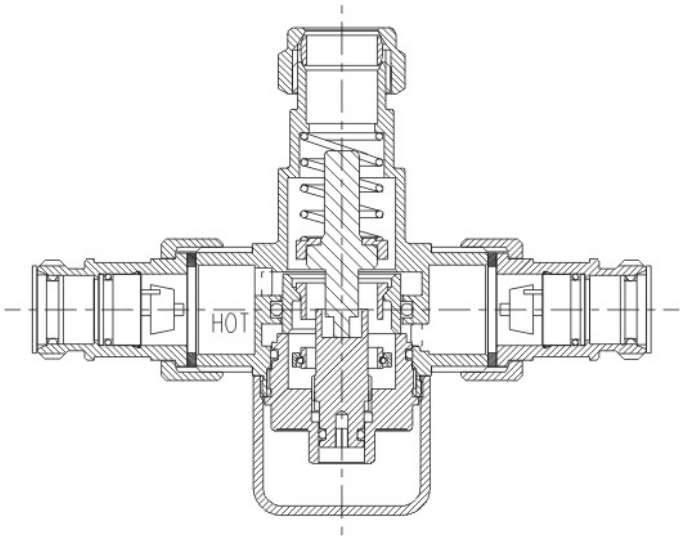
1. Remove the compression nuts, olives and plastic filters from the standard MT503CP inlet ports.



2. Place the 'O' ring provided in this kit onto the flat face adaptor.



3. Insert the flat face adaptor assembly into the hot and cold inlet ports.



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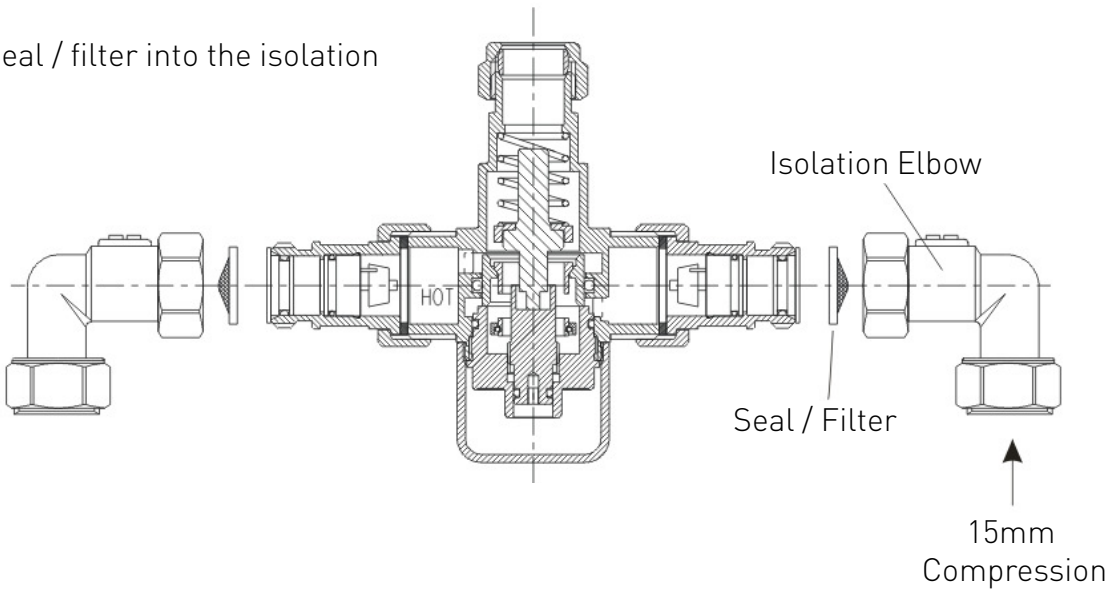
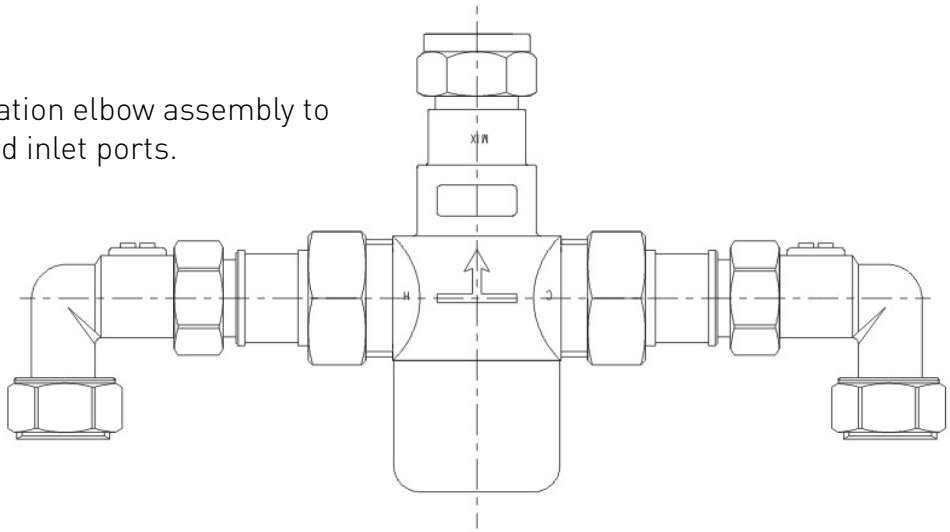
MT503CP to MT503CP-ISOELB

4. Push the seal / filter into the isolation elbow.



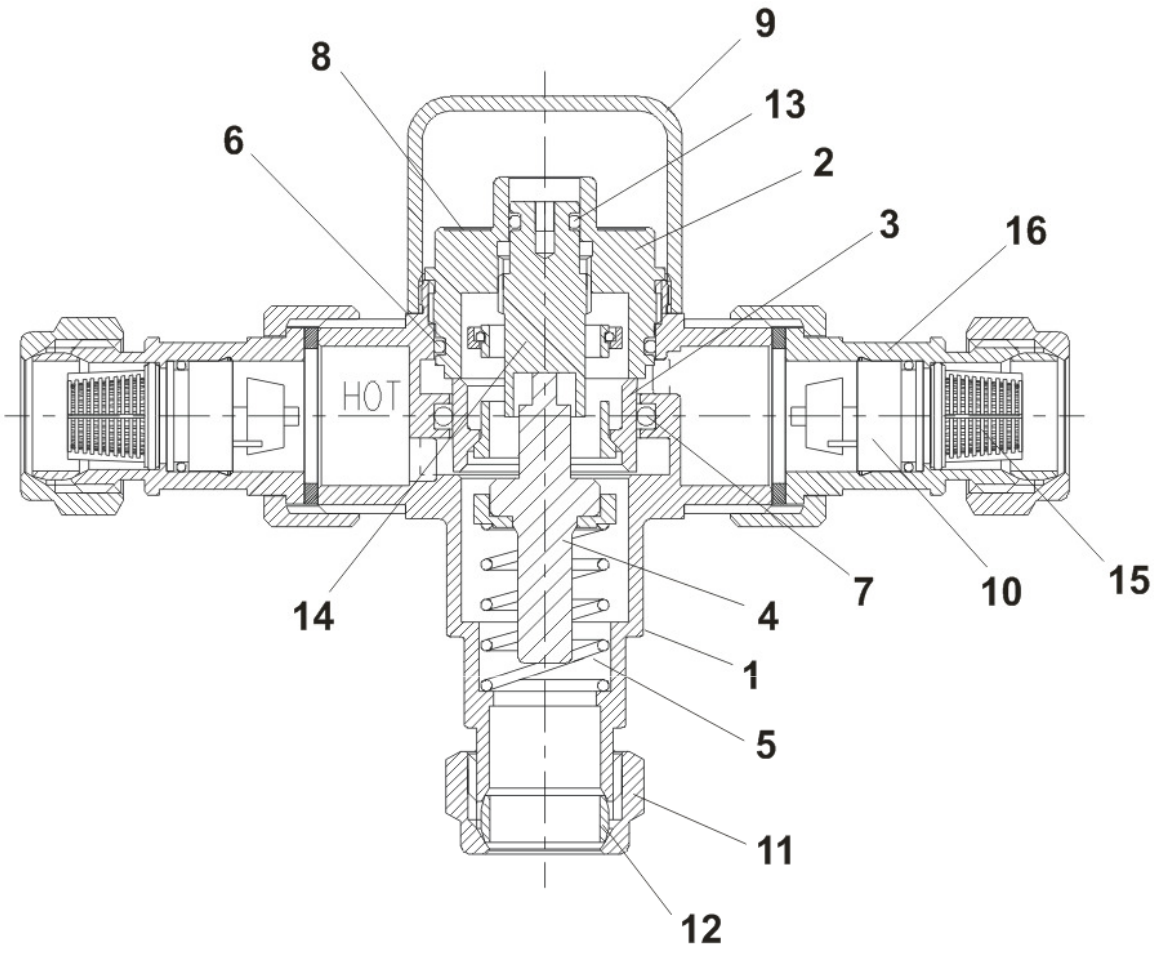
5. Attach the isolation elbow assembly to the hot and cold inlet ports.



Note: Check all joints and connections are sealed from leakage.

Parts Diagram

MT503CP



1	Valve Body	9	Head Cover
2	Valve Head	10	Check Valve
3	Piston Assembly	11	Compression Nut
4	Thermostat Element	12	Compression Ring
5	Return Spring	13	'O' Ring
6	'O' Ring	14	Temperature Adjusting Screw
7	'O' Ring	15	Filter
8	27mm Dia Head Label	16	Inlet Adapter

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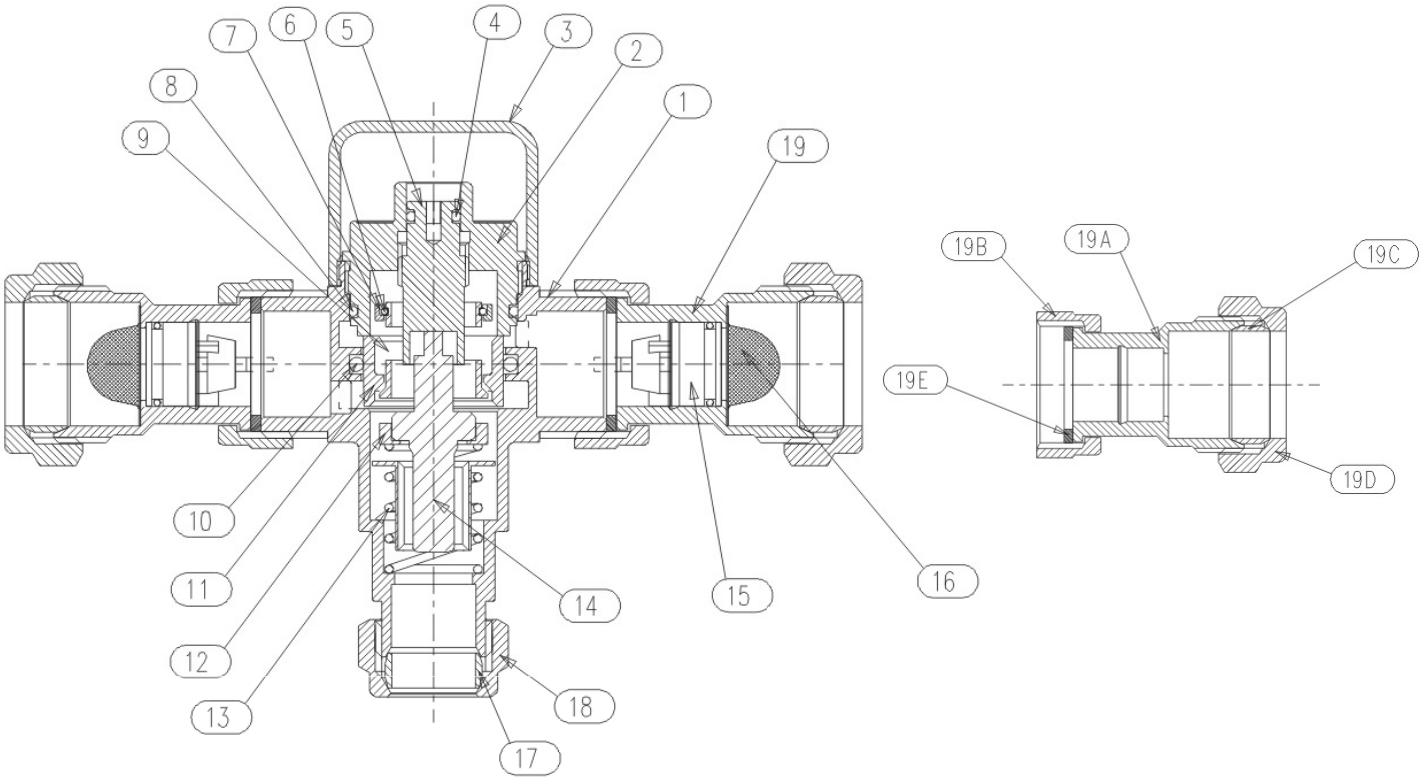
Parts Diagram cont.

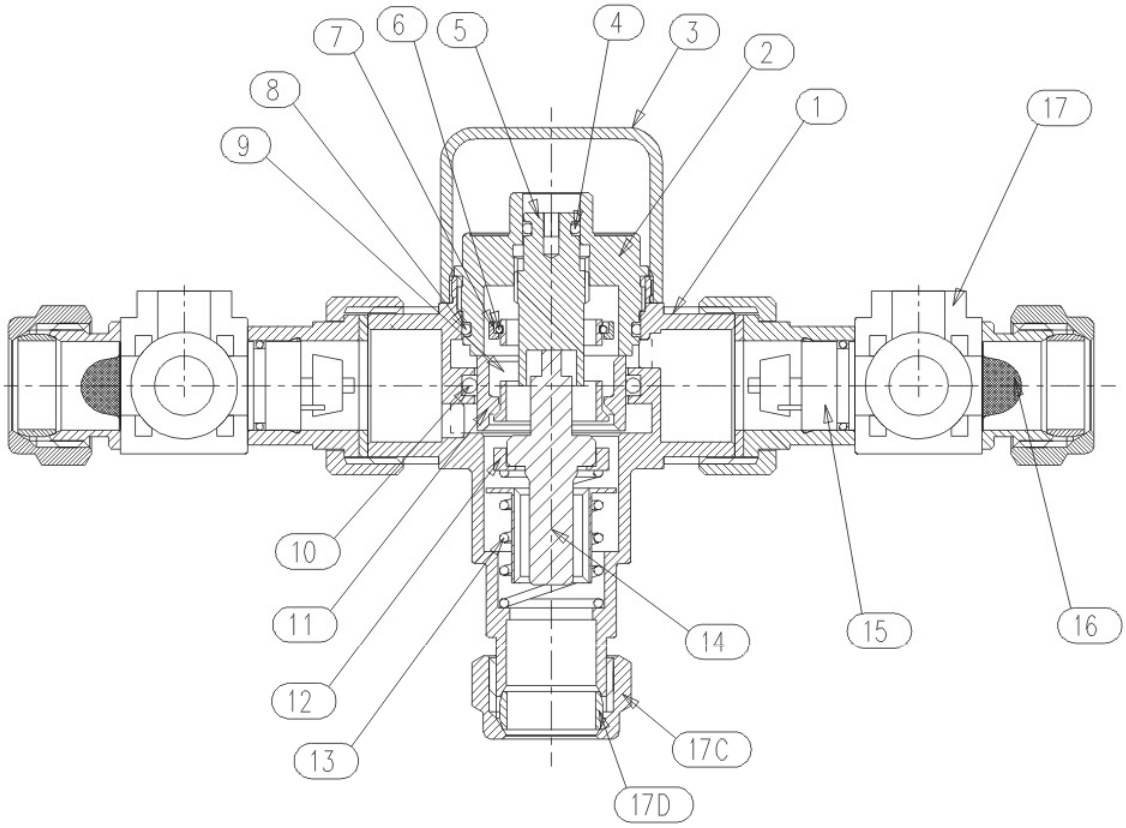
MT503CP-22

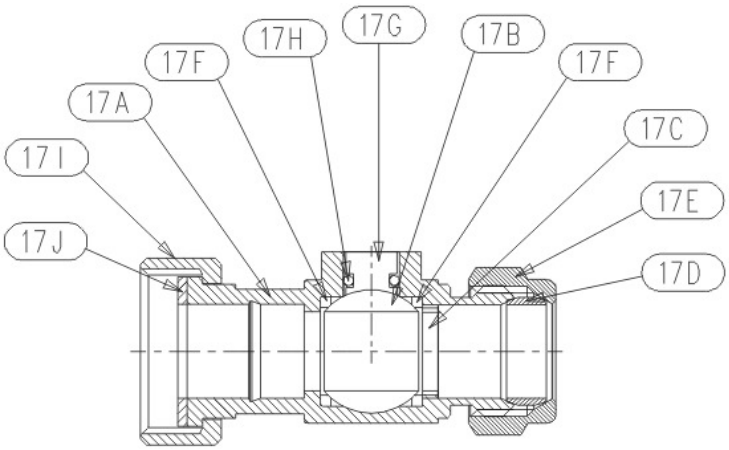


1	Valve Body	13	Return Spring
2	Valve Head	14	Thermostat Element
3	Head Cover	15	Check Valve
4	BS010 'O' Ring	16	22mm Wire Mesh Filter
5	Temperature Adjusting Screw	17	15mm Compression Ring
6	Plain Ring	18	15mm Compression Nut
7	Clamp Ring	19	22mm Adaptor Assembly
8	BS023 'O' Ring	19A	Check Valve Body
9	Overtravel Spring	19B	¾" Connecting Nut
10	'O' Ring 80 SH EP11/8/3	19C	22mm Annealed Copper Olive
11	Piston	19D	22mm Compression Nut
12	Extended Thermostat Housing	24E	WRC approved fibre washer for ¾ BSP flat face connection

Parts Diagram cont.

MT503CP-ISO





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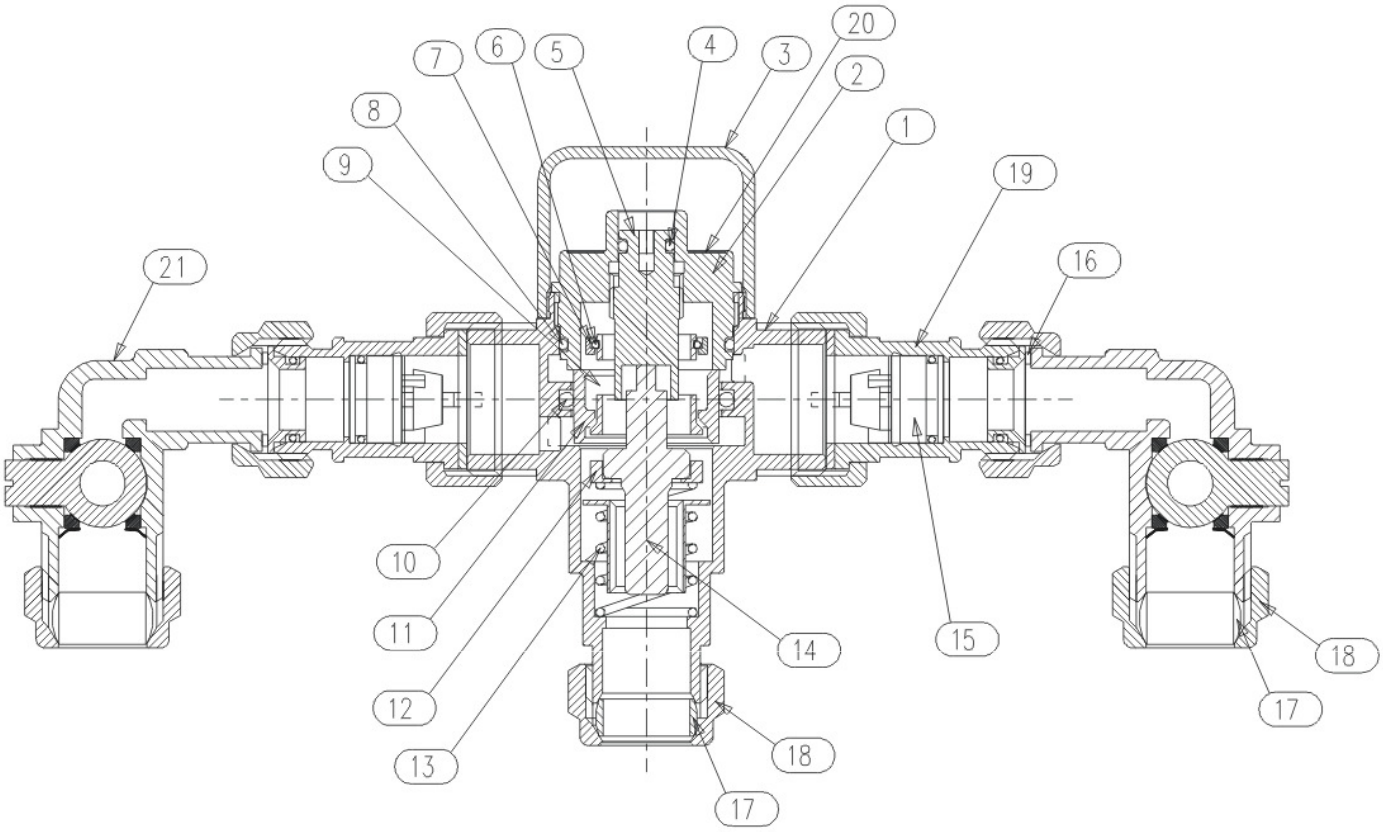
Parts Diagram cont.

MT503CP-ISO cont.

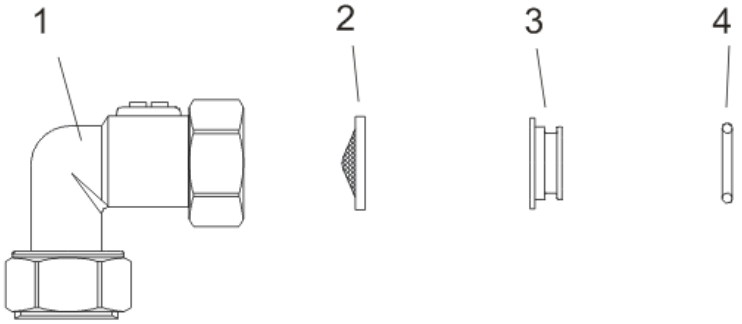
1	Valve Body	15	Check Valve
2	Valve Head	16	Mesh Filter
3	Head Cover	17	Isolating Adaptor Assembly
4	BS010 'O' Ring	17A	15mm Body
5	Temperature Adjusting Screw	17B	Plated Brass Ball
6	Plain Ring	17C	Brass Nut
7	Clamp Ring	17D	15mm Annealed Copper Olive
8	BS023 'O' Ring	17E	15mm Compression Nut
9	Overtravel Spring	17F	PTFE Seat
10	'O' Ring 80 SH EP11/8/3	17G	Brass Actuating Stem
11	Piston	17H	70 Shore EPDM 'O' Ring
12	Extended Thermostat Housing	17I	¾" Connecting Nut
13	Return Spring	17J	WRC Approved Fibre Washer for ¾ BSP Flat Face Connection
14	Thermostat Element		

Parts Diagram cont.

MT503CP-ISOELB



Isolation Elbow Kit for MT503CP



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Parts Diagram cont.

MT503CP-ISOELB cont.

1	Valve Body	12	Extended Thermostat Housing
2	Valve Head	13	Return Spring
3	Head Cover	14	Thermostat Element
4	BS010 'O' Ring	15	Check Valve
5	Temperature Adjusting Screw	16	Rubber Seal and Filter
6	Plain Ring	17	15mm Compression Ring
7	Clamp Ring	18	15mm Compression Nut
8	BS023 'O' Ring	19	Adaptor Assembly
9	Overtravel Spring	20	Label
10	'O' Ring 80 SH EP11/8/3	21	Elbow Isolation
11	Piston		

Isolation Elbow Kit for MT503CP Parts List

Item Nº	Part Ref	Description	Quantity
1	780494FC	Isolation Elbow	2
2	760305	Seal / Filter	2
3	780259	Flat Face Adaptor	2
4	480206	'O' Ring	2

Guarantee

Bristan offers solid guarantees to provide you with complete peace of mind.

Taps and Mixers
5 year parts and 1 year labour*.
Gold, painted and special finishes
3 years parts only.

All subject to proof of purchase.

Thermostatic Mixer Valves
1 year parts. 1 year labour* (subject to registration), or 1 year with proof of purchase.

Gold, painted and special finishes 3 years parts only.

Pumps and Power Showers
2 year parts. 1 year labour* (subject to registration).

Electric Showers/Instantaneous Water Heaters
2 year parts. 1 year labour* (subject to registration).

Accessories
5 year parts only. Includes bathrooms accessories, shower accessories (e.g. hoses, handsets and poles), wastes, WC levers and light pulls. Gold, painted and special finishes 3 years parts only.

Sanitaryware
5 year parts only. Subject to proof of purchase.

Shower Enclosures and Shower Trays
10 year parts (subject to registration), or 2 years with proof of purchase. 1 year labour* (subject to registration), or 1 year with proof of purchase.

Heated Towel Rails
5 year parts only. Gold, painted and special finishes 3 years parts only. All subject to proof of purchase.

*Labour provided by an approved Bristan engineer. Guarantee only applies to products with a manufacturing fault. A deferred payment will be necessary in order to secure any visits by our engineers which will be charged if the problem is found **not** to be a manufacturing fault. If the fault is found to be down to a manufacturing error, the payment will be released and not charged.

This guarantee applies to products purchased within the United Kingdom or Republic of Ireland, but does not apply to products used commercially.

The guarantee is only available to original purchasers who have proof of purchase.

The installation must allow ready access to all products for the purpose of inspection, maintenance or replacement.

Any part found to be defective during the above guarantee period will be replaced without charge, providing that the product has been installed in accordance with the instructions, used as intended, and regularly serviced.

Servicing should be carried out at regular intervals of no more than 12 months and more frequently in hard water areas (heavy lime scale) areas.

In the unlikely event that any problems are encountered with the product's performance on installation, you must obtain guidance/authorisation from our Customer Service Department, and be able to supply proof and date of purchase, before any remedial action is taken.

The guarantee excludes general wear and tear and damage caused by accident, misuse or neglect, and does not cover the following:

Need help? Give us a call on **0844 701 6273** and speak to one of our trained advisors.

Guarantee & Service Policy

- Components that are subject to general wear and tear such as filters, seals, 'O' rings and washers etc.
- Damage caused by faulty installation
- Damage caused by lime scale or any waterborne debris
- Damage caused by inappropriate cleaning products (see cleaning section)
- Damage caused by the use of non-Bristan parts
- The product being used for a purpose other than intended by the manufacturer.

In the interests of continuous product improvement Bristan reserves the right to alter specification as necessary.

Replacement Parts Policy

Important:

In the event of product or component malfunction, DO NOT tamper with or remove the product from site. Telephone the Customer Services Department and be prepared with the date of purchase, model number and a clear description of the complaint.

Our service staff are fully qualified to advise on correct installation procedures and will be able to diagnose whether the fault will require a replacement part or a visit from a Bristan engineer.

If required, a service call will be booked and either yourself or an appointed representative (who should be a person of 18 years or over) must be present during the visit.

All site visits to products out of guarantee will be carried out free of any parts or labour charges provided the conditions of the guarantee have been adhered to (the 2nd to 5th year of the guarantee is parts only, unless registered).

All site visits to products out of guarantee will be subject to charges for parts and labour. Charges will also be levied on cancelled appointments, unless advised to Bristan at least 24 hours in advance of the agreed date and time.

Should a product be discontinued, Spare parts stocks will be maintained, but in the event of a part becoming unavailable Bristan reserve the right to supply a substitute of equal quality.

In order to log an enquiry with us please visit http://www.bristan.com/customerservice

Opening times: Please refer to the Bristan website.

Customer Service: Tel: 0844 701 6273 • Fax: 0844 701 6275

Part Number: 800516C
Issue: MT503CP Range

BRISTAN

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